

***Remarks***

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-12 are pending in the application, with claim 1 being the independent claim. Claims 1 and 3-7 are amended herein. Claim 2 is sought to be cancelled. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendments and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

***Rejections under 35 U.S.C. § 103***

Claims 1-4 and 6-12 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent 6,404,758 to Wang in view of U.S. Patent 6,097,762 to Suzuki *et al.* ("Suzuki"). Applicants respectfully traverse.

Independent claim 1, as amended, recites, among other features, "simultaneously down-converting and performing a matched filtering/correlating operation on a portion of an initially received carrier signal, wherein said down-converting and said performing a matched filtering/correlating operation are performed in a single operation."

In paragraph 2 of the Office Action mailed April 30, 2008, the Examiner alleges that Wang teaches "simultaneously down-converting and performing a matched filtering/correlating operation." *See*, Office Action, paragraph 2. In particular, the Examiner refers to RF circuit 115 and FSC matched filter 130 as performing the above recited step. *Id.* Further, in paragraph 1 of the Advisory Action mailed July 11, 2008,

the Examiner re-asserts this allegation by indicating that "[t]he RF circuit and matched filter [of Wang] can function as a single circuit entity to perform the two operations at the same time, given the broadest reasonable interpretation." Advisory Action, paragraph 1.

Accordingly, the Examiner concedes that down-converting and match filtering occur as "two operations" in Wang, irrespective of the Examiner's claim that they can be performed within "a single circuit entity," given the broadest reasonable interpretation to the disclosure of Wang.

Applicants have amended claim 1 herein. As amended, claim 1 now further recites "wherein said down-converting and said performing a matched filtering/correlating operation are performed in a single operation." Wang, in view of the Examiner's concession, and further in view of FIG. 2 of Wang, which clearly shows that RF circuit 115 and FSC matched filter 130 operate sequentially (i.e., FSC matched filter 130 operates on the output of RF circuit 115) to perform two separate operations (i.e., down-converting and matched-filtering), does not teach or suggest this feature.

Furthermore, Applicants have amended claim 1 to additionally recite the feature of "wherein step(1) comprises the step of convolving an approximate half cycle of the carrier signal with a representation of itself."

In paragraph 2 of the Office Action mailed April 30, 2008, the Examiner alleges that Wang teaches this feature, referring with no further explanation to col. 11, lines 1-13 of Wang. *See*, Office Action, paragraph 2. In paragraph 1 of the Advisory Action mailed July 11, 2008, the Examiner responds to Applicants' argument that Wang does

not teach this feature by indicating that "the language of claim 2 does not state whether the step of convolving is part of downconverting or matched filter/correlating" and then asserting that "[t]he output of the circular sliding integrator is based on one-half the number of time indices that the energy peak drifts during accumulation." Advisory Action, paragraph 1. The Examiner then concludes that "[a]ccordingly, the circular sliding integrator convolves an approximate half cycle of a signal with a representation of itself, given the broadest reasonable interpretation of these terms." *Id.*

Applicants assert that it is irrelevant that the language of claim 2 (now cancelled) does not indicate whether the step of convolving is part of down-converting or matched filtering/correlating<sup>1</sup>. This is because, as further discussed below, the disclosure of Wang referred to by the Examiner (i.e., col. 11, lines 1-13) relates to neither down-converting nor matched filtering. Indeed, as previously pointed out by Applicants in the Reply filed June 23, 2008, lines 1-13 of Wang describe the output of the circular sliding integrator 150, which as can be clearly seen from FIG. 2 of Wang is unrelated to either RF circuit 115 or FSC matched filter 130. Further, FIG. 2 of Wang shows the circular sliding integrator 115 as a separate component, which acts on the output of the accumulator 140. Therefore, whatever steps are performed by the circular sliding integrator 150 cannot be said to be part of either the down-conversion operation (performed by RF circuit 115) or the matched filtering operation (performed by matched filter 130) described by Wang.

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<sup>1</sup> Note: As indicated above, downconverting and matched filtering/correlating occur in a single operation according to claim 1, as amended, and thus the step of convolving is part of this single operation.

In addition, Applicants assert that, contrary to the Examiner's allegation, Wang does not teach or suggest the step of "convolving an approximate half cycle of the carrier signal with a representation of itself." Indeed, as discussed above, the circular sliding integrator 115 is a separate component in the receiver of Wang, and is not part of either RF circuit 115 or FSC matched filter 130. For example, as shown in FIG. 2 of Wang, the circular sliding integrator 150 of Wang is coupled to accumulator 140 and is located away from RF circuit 115 and FSC matched filter 130 in the receiver chain. Further, the circular sliding integrator 115 of Wang acts on energy accumulated from matched filtering a baseband signal. Thus, the circular sliding integrator 115 performs no operations on the **carrier signal**. Also, it is not clear to Applicants how Wang's disclosure in col. 11, lines 1-13 can be interpreted as teaching or suggesting the step of "convolving an approximate half cycle of the carrier signal with a representation of itself." Indeed, all Wang's disclosure describes is a process of integrating energy peaks located at multiple time indices according to a sliding integration window, in order to account for dispersed energy due error. *See*, Wang, col. 11, line 14 - col. 12, line 10.

For at least the reasons above, Wang does not teach or suggest the step of "convolving an approximate half cycle of the carrier signal with a representation of itself," as recited in amended claim 1.

Furthermore, in rejecting claim 1 in the Office Action mailed April 30, 2008, the Examiner alleges that Suzuki discloses "a circuit in which a down-converter shown in FIG. 6 and a matched filter shown as multiplier 55 and switch 66 perform down-converting and filtering, respectively, on a portion of an initially **received carrier**

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**signal."** Office Action, paragraph 2 (emphasis added). The Examiner re-asserts this allegation in the Advisory Action mailed July 11, 2008 by indicating that "[t]he multiplier 55 and switch 66 in Suzuki perform down-converting and filtering, respectively, on a portion of an initially received carrier signal." Advisory Action, paragraph 1.

Applicants respectfully disagree with the Examiner's allegation for at least the following reason. Suzuki, in col. 5 lines 39-46, discloses that frequency converter 53 down-converts the signal received by antenna 51 to a **baseband** signal. Indeed, Suzuki specifically recites that "[t]he signal received at the antenna 51 is amplified by an amplifier 52 and supplied to a frequency converter 53, in which it is frequency converted into a **baseband** signal . . . ." Suzuki, col. 5, lines 39-42 (emphasis added). Thus, multiplier 55 and switch 66, as can be clearly seen from FIG. 6 of Suzuki, act on a **baseband signal**, not on the **received carried signal**, as recited in claim 1.

For at least the reasons above, Wang and Suzuki, alone or in combination, do not teach or suggest each and every feature of claim 1, as amended. Therefore, claim 1, as amended, is patentable over Wang and Suzuki. Reconsideration and withdrawal of the rejection of claim 1 is respectfully requested.

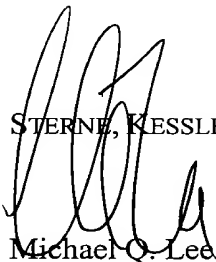
Claims 3-4 and 6-12 depend from claim 1. Accordingly, for at least the reasons discussed above with respect to claim 1, claims 3-4 and 6-12 are patentable over Wang and Suzuki. Reconsideration and withdrawal of the rejection of claims 3-4 and 6-12 is respectfully requested.

***Conclusion***

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,



STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Michael Q. Lee  
Attorney for Applicants  
Registration No. 35,239

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1100 New York Avenue, N.W.  
Washington, D.C. 20005-3934  
(202) 371-2600

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